**🔹 Business Problem**

A bike retailer wanted to better understand which customer groups are most likely to purchase bikes. The goal was to improve marketing strategy, target the right customers, and maximize return on investment (ROI).

**🔹 Dataset**

* 1,000+ customer records containing demographics (age, gender, income, education, region, occupation, marital status), commute distance, and purchase decision.
* Target variable: **Purchased Bike (Yes/No)**

**🔹 Approach**

**1. Data Cleaning & Preparation**

* Removed **duplicates** to avoid double-counting customers.
* Standardized column names and corrected inconsistent entries (e.g., “Marital statius” → “Marital Status”).
* Handled **null and empty rows** by either filling with appropriate values or removing them if incomplete.
* Created a new **Age Range column** to categorize customers into meaningful groups (Young, Middle-aged, Old).

**2. Data Analysis**

* Built **PivotTables** to explore relationships between bike purchase decisions and demographic, financial, commute distance, and education variables.
* Used PivotTables to calculate:
  + **Average income by gender vs. purchase decision**
  + **Purchase decisions by age group**
  + **Purchase decisions by education level**
  + **Purchase decisions by commute distance**

**3. Visualization**

* Used **bar and line charts** to present trends and comparisons.
* Applied filters for dynamic exploration.
* Ensured visuals were clean and easy to interpret at a glance.

**4. Dashboard Development**

* Combined PivotTables and charts into an **interactive dashboard**.
* Added **slicers** for deeper exploration:
  + **Region**
  + **Occupation**
  + **Marital Status**

**🔹 Key Insights**

* **Income factor**: Higher income levels correlated with higher bike purchase rates.
* **Commute distance**: Purchases **decreased as commute distance increased** — short-distance commuters (0–5 miles) bought more bikes.
* **Age group**: **Middle-aged customers** showed the highest likelihood of buying bikes.
* **Occupation**: **Management, professionals, and skilled manual workers** were the top buyer groups.
* **Education**: Higher education levels were linked to greater purchase rates.
* **Region**: **Europe recorded the lowest bike purchases** compared to other regions.
* **Marital status**: Married individuals purchased slightly more than singles.

**🔹 Impact**

This analysis provides a clear profile of the **ideal target customer** for bike retailers.

* **Who?** Middle-aged professionals or managers, typically married, with higher income.
* **Where?** Urban areas with short commute distances.
* **What?** Stronger demand for mid-to-premium bikes and commuting solutions.

**🔹 Recommendations**

1. **Targeted Marketing**: Focus campaigns on middle-aged professionals and managers with higher income and shorter commutes.
2. **Regional Strategy**: Strengthen marketing outside Europe, where purchase rates are higher.
3. **Product Bundling**: Promote commuting packages (bikes + accessories) tailored to urban professionals.
4. **Awareness Campaigns**: Explore strategies to increase awareness and sales in low-performing regions (e.g., Europe).

**🔹 Tools & Skills**

* **Excel**: Data cleaning, PivotTables, PivotCharts (bar & line), Slicers, Conditional Formatting, Dashboard Design.
* **Data Preparation**: Handling duplicates, nulls, and standardization of categorical variables.
* **Data Visualization**: Interactive dashboards for storytelling and decision-making.